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10/606,638	06/26/2003	Willi Kreuder	512667-3479.2.	5023

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/606,638

Applicant(s)

KREUDER ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. 08/817,328, which is a
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application, from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date rec'd 26 June 2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. The present application is a continuation of U.S. Application No. 09/795,795, which is a continuation of U.S. Application No. 08/817,328, which is a 371 of PCT/EP95/03835, filed 09/28/95, and claims priority of 35 U.S.C. 119 of two German patent applications. During prosecution of 08/817,328, applicant's claim for foreign priority based on German patent application P 44 35 047.7, filed 09/30/94, was perfected.

2. The preliminary amendment filed June 26, 2003, which amends the specification, cancels claims 1-10, and adds claims 11-30, has been entered.

Claims 11-30 are pending.

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not refer to/identify the international application which is the basis for the grandparent application.

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it is not in single paragraph form and because it includes a phrase in the second paragraph which can be implied ("according to the invention"). Correction is required. See MPEP § 608.01(b).

6. The disclosure is objected to because of the following informalities:

The continuing data statement that was added to the specification by the preliminary amendment filed June 06, 2003 does not identify grandparent Application Serial No. 08/817,328 as a 371 of PCT/EP95/03835 filed 09/28/95.

Appropriate correction is required. When amending the continuing data statement, applicant is also respectfully requested to include the filing date for the '328 application, and provide the current status ("now abandoned") for both prior U.S. applications.

7. Claims 20, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

No examples are given in the specification of a polymer wherein A^1 , A^2 and A^3 are linked via one bridge. The original claim terminology of “optionally linked...and/or fused” or “optionally linked...and/or condensed” is interpreted in light of the specification as allowing for optional linking and/or fusing (condensing) between aryl and/or heteroaryl groups within a single one of A^1 , A^2 and A^3 , rather than between one of A^1 , A^2 and A^3 and at least one other of A^1 , A^2 and A^3 .

8. Claims 14, 19 and 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 14, with claims 24-29 dependent directly or indirectly therefrom, it is not certain if the three groups following the line “ A^3 , of the two possible binding sites” are possible groups for A^3 , with the proviso that one of the bonding sites is “realized”. If so, it is uncertain how A^2 can be considered to have the same meanings as A^1 and A^3 .

Claim 19 is an improper dependent claim in referring to “a polymer as claimed in claim 11”. Claim 11 is drawn to an electroluminescent material.

Claim 30 is indefinite because the structure of formulae (III) and (II) are not correct (compare to the formulae as shown on pages 11 and 12 of the specification, particularly the bonding positions for the oxygens in (III) and the A^2 s in (II)).

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 11-19, 21-27 and 30 are rejected under 35 U.S.C. 102(a and/or b and/or e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over applicant's admissions.

In the first full paragraph on page 11 of the specification, applicant admits that "polymers containing structural units of the formula (I) are known in some cases". The certified translation of applicant's foreign priority application P 44 35 047.7, filed 09/30/94, contains the same statement. Accordingly, based on applicant's admission, polymers within the scope of formula

(I) have been known since at least 09/30/94. (Applicant has not provided any further information regarding the polymers that are known.)

This rejection is made under 35 U.S.C. 102(a) and/or (b) and/or (e) because applicant's admission does not identify when these polymers were first known or used by others and/or patented or described in a printed publication in this or a foreign country. If any of the known polymers were patented or described in a printed publication in this or a foreign country prior to 09/28/94 (more than one year prior to the filing date of PCT/EP95/03835), those patent(s) or printed publication(s) constitute prior art under 35 U.S.C. 102(b) against at least claim 11, which contains the broadest definition of formula (I).

The preamble recitations of "electroluminescent material" and "electroluminescent device" do not patentably distinguish the presently claimed material or device from the known polymers because the only positive limitation of the claimed material is the polymer of formula (I), and the only positive limitation of the "device" claim is a layer comprising the polymer of formula (I).

The process as claimed in claim 30 is also anticipated and/or obvious over applicant's admission that the polymers are known. Even if the method of claim 30 is not described in any of the disclosures of the known polymers, the method of claim 30 is obvious over those disclosures in view of applicant's admission on pages 12 and 13 that the polymers are prepared by generally known organic synthesis methods.

This rejection is also made alternatively under 35 U.S.C. 102 or 103 because applicant does not admit that all polymers within the scope of the present claims are known.

With respect to novel polymers within the scope of formula (I) that are similar in structure to known polymers within the scope of formula (I), it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make polymers similar in structure to known polymers with the expectation that polymers that are similar in structure would have similar properties and could be used for the same purpose as the known polymers.

Further, with respect to the use of the polymers in an electroluminescent device, even if the disclosures of known polymers do not specifically disclose their use in an electroluminescent device, the use of the polymers in an electroluminescent device would have been obvious to one of ordinary skill in the art since the use of similar conjugated polymers in electroluminescent devices was known at the time of the invention as admitted by applicant on pages 1 and 2 of the specification.

12. Claims 20, 28 and 29 are not included in the preceding rejection because it is the examiner's position that the electroluminescent material defined by these claims is not within the scope of the original disclosure. Accordingly, applicant's admissions in the specification do not directly apply to the subject matter of these claims.

13. Claims 11-19, 21-27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friend et al. (WO 90/13148).

Friend et al. disclose an electroluminescent device comprising a light-emitting layer comprising a film comprising at least one conjugated polymer. See the abstract, the first

paragraph on page 1, the first full paragraph on p. 3, the two full paragraphs on p. 5, the fourth paragraph on p. 6, pp. 7-9, and page 11, last full paragraph to p. 13, first full paragraph. In particular, see p. 12 where it is disclosed that poly(1,4-phenylene-1-phenylvinylene) can be used to form the film of conjugated polymer.

Poly(1,4-phenylene-1-phenylvinylene) meets the limitations of formula (I) of the present claims wherein A¹ is phenylene, A² is phenyl, and A³ is phenylene, with the exception that the position of the phenyl ring on the second vinylene group shown in formula (I) would be reversed. This prior art polymer meets the limitations of groups (1c), (1g) and (1l) of claim 5 where A¹ is phenylene, A² is phenyl, and A³ is phenylene, with the exception that the position of the phenyl ring on the second vinylene group shown in these three formulae would be reversed. That is, written in the format used in present claim 11, the prior art polymer contains structural units of the formula $-[A^1-(A^2)C=CH-A^3-C(A^2)=CH]-$. The prior art polymer is a position isomer of the presently claimed polymer and is used for the same purpose as the presently claimed polymer. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make polymers similar to those disclosed in the prior art with the expectation that polymers similar in structure will have similar properties. Compounds which are position isomers are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

The prior art also discloses that conjugated polymers derived from poly(p-phenylene-vinylene) may be used wherein the phenylene ring is replaced by a fused ring system or a

heterocyclic ring system (e.g. see pp. 7-9). Although the prior art does not given any specific examples of a polymer comprising heterocyclic rings and comprising substituted vinylene groups, one of ordinary skill in the art would have been motivated to make polymers similar to those disclosed in the prior art with the expectation that polymers similar in structure will have similar properties. Given the prior art disclosure that polymers comprising heterocyclic ring systems can be used in a light-emitting layer, and that polymers comprising vinylene groups substituted with a phenyl ring can be used in a light-emitting layer, one of ordinary skill in the art would reasonably expect that a polymer comprising heterocyclic ring systems and comprising aryl or heteroaryl substituted vinylene groups could be used in a light-emitting layer.

The prior art does not limit the number of structural units in the polymers as required by present claim 12. Absent a showing of criticality for the size of the polymer as limited by claim 12, it is the examiner's position that it would have been within the level of ordinary skill of a worker in the art to make polymers having various degrees of polymerization (i.e. various numbers of repeating units). It would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum degrees of polymerization for the prior art polymers to be used according to the prior art, guided by factors such as physical properties associated with polymers of different degrees of polymerization. For example, viscosity generally increases as degree of polymerization increases. Accordingly, one of ordinary skill in the art would have been motivated to provide a polymer having an appropriate viscosity for solution coating as set forth in the prior art.

The prior art does not disclose the method of polymerization set forth in present claim 21. The polymerization process of present claim 21 is known (e.g. see the paragraph bridging pages 12 and 13 of the present specification). It would have been within the level of ordinary skill of a worker in the art at the time of the invention to use known methods of polymerization in order to make conjugated polymers similar to those disclosed by the prior art.

14. Applicant is advised that should claim 14 be found allowable, claim 26 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. Applicant is advised that should claim 28 be found allowable, claim 29 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

15. Miscellaneous:

In line 1 of claim 13, "Class 11" should apparently read --Claim 11--.

Claim 3 allows X to be "-CH_Z-CH_Z-" and Z is defined as -O- or -S-. "-CH_Z-CH_Z-" is incorrect. The subscript "Z" should apparently be a subscript --2--.

The examiner notes that with respect to "group (Ia) to (Io)" in claim 15, there is no group (Ij), and groups (Id) and (Io) are the same.

Applicant is requested to verify whether claim 21 is correct in reciting "m is 1, 2 or 13."

(The corresponding claim in the '795 parent application recited "m is 1, 2 or 3.")

In the last line of claim 27, the dash marks after the period should be deleted.

16. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes.
(Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
October 18, 2004



MARIE YAMNITZKY
PRIMARY EXAMINER

1774